

REMARKS

The final Office action dated August 3, 2007, and the references cited have been fully considered. In response, please enter the Request for Continued Examination (RCE) and the following amendments, and consider the following remarks. Reconsideration and/or further prosecution of the application is respectfully requested. No new matter is added herein.

Applicants appreciate the thoughtful examination of the application. As this application has been pending for a long duration, Applicants have amended each of the independent claims to explicitly recite a mechanism used in one embodiment for accessing of the remote boot image(s) by the slave system(s), such as that described on pages 12-13 of the original application and illustrated by the process blocks of the flow diagram of FIG. 2, and discussed hereinafter. Applicants respectfully submit that all pending claims are allowable, as the prior art of record neither teaches nor suggests all of the recited limitations of any pending claim.

As discussed in the originally filed application: FIG. 2 presents a flow diagram of a boot process used in one embodiment for redirecting the boot operations of one or more systems. At power-up or upon reset or other initialization condition, processing begins with process block 200, and proceeds to process block 202, wherein the master system is booted. In process block 204, the slave controllers are released, and as indicated in process block 206, a possible delay is imposed to ensure their initialization has stabilized.

Next, in process block 208, the slave systems whose boot operation is to be redirected are identified. In one embodiment, the shared bus or buses (e.g., PCI buses) are scanned or predefined addresses are used in order to locate the slave devices. In one embodiment, the PCI bus is scanned looking for the system controllers of the slaves. For each slave found, the master interrogates the slave for its type and version, while in one embodiment, this information is predetermined and available to the master system such as via a data structure located in memory. In process block 210, the master system determines the boot software and its location

appropriate for the slaves and the particular application to be performed by each slave. This software can reside in a local or remote memory, storage device, server, or other location.

In one embodiment, as indicated by process blocks 212 and 214, if the corresponding one or more boot software sets are not located in memory, the corresponding one or more boot software sets are retrieved and stored in memory for easy and quick access during the booting of the slave systems.

Next, in process block 216, the master system assigns each slave controller with an address or a range of addresses to be used by the master processor for accessing the slave systems. In process block 218, the master programs its own system controller with these addresses. From this point on, when the master processor issues an address destined to a certain slave, the master system controller will translate it to an appropriate bus address and redirect it to the bus where the desired slave controller is located.

In process block 220, the master processor programs each of the slave system controllers to allow access to their internal registers from the shared bus to allow the master processor to configure the slave system controllers. In one embodiment, the master processor, using PCI configuration cycles, accesses the PCI registers of the slave system controllers and assigns each slave system controller with the base address and an access rule. From this point on, the master processor can access the registers of the slave system controllers by issuing standard read/write commands from/to those addresses.

In process block 222, the master processor manipulates the registers of the slave system controllers so that when a slave processor issues an address that is part of the boot-code range of addresses, this address will be directed the shared bus. In one embodiment, the system controllers are also programmed to translate the address to a different one when one or more slaves are to access one or more different locations in the master system. In this manner, the

addresses generated by the slave CPU, which were originally directed to its boot ROM, are now redirected to the shared bus and to the desired remotely located boot code.

In process block 224, the master programs its system controller to direct the slave boot addresses (generated by a slave CPU and directed by a corresponding slave system controller to the shared bus) to the corresponding boot code location, which may reside in memory or storage device of the master system, another slave system, remote server, or other system or device.

In process block 226, the processors of the slave systems are released, so they will start their boot process, and retrieve its boot code from the redirected location. This will eventually boot the slaves. Processing is complete as indicated by process block 228.

More specifically as to the claim amendments presented herein, independent claim 8 is amended to revise some wording to reflect current drafting preferences and to recite limitation as to the master system controller accessing and manipulating the registers of the slave systems in order to cause the appropriate booting according to the determined boot image based on the recited interrogation limitation. As the all the limitations recited in independent claim 8 are neither taught nor suggested by the prior art of record, independent claim 8 and its dependent claims 31, 32, 35, 58, 59 and 60 are believed to be allowable. Additionally as to this claim set: claims 36-38 are canceled without prejudice; claim 58 is added to recite the scanning of the bus by the master system controller in order to discover the first and second slave systems (such as described on page 12 and illustrated by process block 208 of FIG. 2); and to add claims 59 that recited that the bus is a PCI bus, such as that described on page 2 and shown in FIG. 1, element 109A. For at least these reasons, independent claim 8 and its dependent claims 31, 32, 35, 58, 59 and 60 are believed to be allowable.

In regards to the next claim set, independent claim 13 is amended in a manner similar to that described in relation to independent claim 8 and new claim 61 is added to recite that the bus is a PCI bus, with support provided as discussed *supra*; and claim 39 is cancelled without

prejudice. For at least the reason that all of the limitations recited in independent claim 13 are neither taught nor suggested by the prior art of record, independent claim 13 and its dependent claims 33, 40, 41, 42, 43, 44 and 61 are believed to be allowable.

In regards to the next claim set, independent claim 45 is amended in a manner similar to that described in relation to independent claim 8 and new claims 62 and 63 are added to recite that the master and system are communicatively coupled via a bus, and in one embodiment, the buss is a PCI bus, with support provided as discussed *supra*; and claims 46 and 48 are cancelled without prejudice; claim 47 is amended to depend directly from claim 45. For at least the reason that all of the limitations recited in independent claim 45 are neither taught nor suggested by the prior art of record, independent claim 45 and its dependent claims 47, 49, 50, 51, 62 and 63 are believed to be allowable.

In regards to the next claim set, independent claim 52 is amended in a manner similar to that described in relation to independent claim 8 and new claims 64 and 65 are added to recite that the master and system are communicatively coupled via a bus, and in one embodiment, the buss is a PCI bus, with support provided as discussed *supra*; and claim 56 is cancelled without prejudice; claim 57 is amended to depend directly from claim 52. For at least the reason that all of the limitations recited in independent claim 52 are neither taught nor suggested by the prior art of record, independent claim 52 and its dependent claims 53, 54, 55, 57, 64 and 65 are believed to be allowable.

In view of the above remarks and for at least the reasons presented herein, all pending claims are believed to be allowable over all prior art of record, the application is considered in good and proper form for allowance, and the Office is respectfully requested to issue a timely Notice of allowance in this case. Applicant requests any and all rejections and/or objections be withdrawn. If, in the opinion of the Office, a telephone conference would expedite the

prosecution of the subject application, the Office is invited to call the undersigned attorney, as Applicants are open to discussing, considering, and resolving issues.

Applicants believe no extension of time is required. Should an extension of time be deemed appropriate, Applicants hereby petition for such deemed extension of time. Applicants further authorize the charging of Deposit Account No. 501430 for any fees that may be due in connection with this paper (e.g., claim fees, extension of time fees).

Respectfully submitted,
The Law Office of Kirk D. Williams

Date: October 31, 2007

By



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